terminal (UE) may comprise at least a processor, a memory, and a communications interface. The UE may also comprise a user interface. The memory in each apparatus may comprise computer code instructions to implement the functions listed in the claims. Thus, a transmission from the eNB may involve the cooperation of the processor, the memory containing computer code instructions, and the communications interface, to transmit the specified information. In like manner, the UE may receive information by cooperation of its communications interface with the processor and computer instructions in its associated memory. Where any claimed function is merely computational it may be performed by the processor alone, or by the processor following instructions in memory, without cooperation with the communications interface.

[0052] There are several advantages to the white spaces enabling/request and handshake protocol described herein. Networks, such as LTE networks, can utilize more spectrum resources and new spectrum beyond the licensed spectrum. Devices may coexist in the white spaces spectrum and fill spectral coexistence requirements. The signaling of white spaces configuration via network signaling in the licensed spectrum is reliable and can be optimized. Signaling for the enabling handshake on white spaces frequencies is minimal. Security functions need not be duplicated; standard network security and integrity protection serve white spaces operations. Timing can be controlled by the eNB, making reception moments known, reducing search and detection time. Processing power and energy are conserved at both the eNB and UE. Access to white spaces is faster and more effective. Momentary exploitation of enabled white spaces frequencies is effective because of carrier aggregation, such as in LTE, while secondary component carriers on white spaces may be activated and deactivated by the, e.g., MAC CE.

[0053] The following list presents abbreviations and acronyms that have appeared in the specification and that may be found in the claims.

[0054] 3GPP=Third Generation Partnership Project

[0055] ASA=Authorized shared Access

[0056] CM=Coexistence manager, an architectural element according to IEEE 802.19.x

[0057] CE=Coexistence enabler, an architectural element according to IEEE 802.19.x

[0058] eNB=LTE evolved NodeB, LTE base station

[0059] EnIS=White spaces enabling Information Structure

[0060] EUTRA=Evolved Universal Terrestrial Radio Access

[0061] EUTRAN=EUTRA network

[0062] GDB=Geolocation database

[0063] HASH=encrypted checksum for message integrity protection

[0064] IEEE 802.19.1=standard for coexistence on TV white spaces

[0065] LCID=Logical Channel Identity

[0066] LTE=Long Term Evolution, 3GPP EUTRA, EUTRAN technology

[0067] MAC=Medium Access Control protocol

[0068] MAC CE=MAC Control element=MAC Control PDU

[0069] PCC=Primary Component Carrier in a carrier aggregation scheme

[0070] Pcell=Primary cell of a carrier aggregation scheme

[0071] PDCP=Packet Data Convergence Protocol

[0072] RRC=Radio Resource Control protocol

[0073] SCC=Secondary Component carrier in a carrier aggregation scheme

[0074] Scell=Secondary cell of a carrier aggregation scheme

[0075] SDO=Standard Defining Organization

[0076] SFN=System Frame Number of LTE

[0077] UE=User Equipment

[0078] WS=white spaces

[0079] WS_Config=carrier aggregation configuration for white spaces

[0080] WS_Meas=Measurements for white spaces

[0081] WS_MeasReport=Measurement report for white spaces

[0082] WS_OOR=Measurement report of type white spaces out of range

[0083] Many modifications and other embodiments of the inventions set forth herein will come to mind to one skilled in the art to which these inventions pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the inventions are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Moreover, although the foregoing descriptions and the associated drawings describe example embodiments in the context of certain example combinations of elements and/or functions, it should be appreciated that different combinations of elements and/or functions may be provided by alternative embodiments without departing from the scope of the appended claims. In this regard, for example, different combinations of elements and/or functions other than those explicitly described above are also contemplated as may be set forth in some of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

1-63. (canceled)

64. A method comprising:

acquiring spectral resources beyond a licensed spectrum for wireless network communications from available spectrum; and

identifying a carrier aggregation configuration of available white space frequencies using network signaling in the licensed spectrum.

65. The method of claim **64** further comprising:

enabling white space communications using an interactive handshake sequence.

66. The method of claim **65** further comprising:

causing an enabling signal to be transmitted from a wireless network entity to indicate the availability of one or more white spaces for wireless network communications.

67. The method of claim **66** further comprising:

receiving at a wireless network entity an enabling request for one or more white spaces requesting activation of those white spaces for network communications.

68. The method of claim **67** further comprising:

causing an enabling response to be transmitted for at least a white spaces frequency component to be activated in response to the enabling request.